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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,233	06/29/2001	David F. Craddock	AUS920010492US1	8645

7590 03/07/2005	EXAMINER
Duke W. Yee	SWEARINGEN, JEFFREY R
Carstens, Yee & Cahoon, LLP	

	ART UNIT | PAPER NUMBER
P.O. Box 802334	2145
Dallas, TX 75380	

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Office Action Summary	Application No.	Applicant(s)
		09/895,233	CRADDOCK ET AL.
		Examiner	Art Unit	
		Jeffrey R. Swearingen	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _10-12 and 16_ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-9, 13-15, and 17-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2.   Claims 1, 5, 8, 13, 17, and 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Shah et al. (U.S. Patent No. 6,694,361).

3.   In regard to claims 1, 13 and 22, Shah discloses a *method* [and *system* and *computer program product in a computer readable medium*] *for end node partitioning for a physical element, comprising the steps of:*

    a.   *Selecting a configuration of the physical element, said physical element including a plurality of ports;* [Shah discloses host-fabric adapter initialization and configuration and channel configuration. Shah, column 5, lines 48-50. Channel configuration would inherently involve channel adapters in the Shah invention. Shah discloses that channel adapters contain one or more subnet attachment points called ports. Shah, column 7, lines 43-45. Furthermore, the Examiner considers that any host-fabric adapter configuration would inherently contain a plurality of ports because a connection between a host and the switching fabric is often a port.]

    b.   *Probing one of said plurality of ports that is included within said physical element, wherein the port is probed with a subnet management packet by a subnet manager;* [Shah, column 7, lines 27-34. Shah, column 8, lines 33-51. Shah discloses management of ports on channel adapters by the subnet manager. While Shah does not explicitly state probing the port with a subnet management packet, this function is considered well within the realm of port management by a subnet manager.]

    c.   *In response to determining that said physical element is a particular type of physical element, partitioning said physical element to provide a plurality of virtual representations of said physical element, each one of said plurality of virtual representations having a unique access control level;* [Shah discloses assigning multiple paths to a port. [Shah, column 8, lines 52-67. Each path can provide different service levels. The Examiner places little weight on the word

virtual since virtual can mean created by a computer and or computer network, according to *The American Heritage College Dictionary*, fourth edition.] *and*

d.   *Partitioning said physical element by assigning a different local identifier to each one of said plurality of ports that is included within said physical element resulting in a configuration change of the physical element.* [Shah, column 8, lines 37-56. Transitioning the ports through different states is a *configuration change of the physical element.*]

4.   In regard to claims 5 and 17, Shah discloses *said physical element being one of a switch, a target channel adapter, and a host channel adapter.* [Shah detects ports when a host is plugged into the subnet. Shah states that ports on all channel adapters are managed by the subnet manager. Standard switch hardware in the networking art also includes the presence of ports in order to communicate with external devices such as channel adapters. Shah, column 8, lines 32-51]

5.   In regard to claims 8 and 20, Shah discloses *connecting one or more operating system images to at least one host channel adapter.* [Shah discloses that the hardware may be used to support asynchronous data transfers between memory regions on different systems. Shah does not explicitly state that operating system images are present on a channel adapter, but in order to interface with a system the presence of an operating system image is inherent to the hardware. Shah, column 6, lines 44-47.]

6.   In regard to claims 9 and 21, Shah discloses *the host channel adapter is a virtual host channel adapter.* [Shah discloses use of virtual hardware in column 6, lines 44-47. Shah defines VI hardware as a virtual interface in column 6, line 26. Virtual hardware or VI hardware would include a virtual host channel adapter. The term virtual is also given little weight as previously stated in this rejection.

Claim Rejections - 35 USC § 103

7.   Claims 2-4, 6-7, 14-15, 18-19, and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shah as applied to claims 1, 13, and 22 above, and further in view of Bakke et al. (U.S. Patent No. 6,704,812).

8.   Pertaining to claims 2, 14 and 23, Shah teaches a method for end node partitioning as applied to

claim 1. Shah fails to disclose selecting the configuration of the physical element includes a static

selection of the physical element and a dynamic selection of the physical element. Bakke teaches static

assignment at initialization [selecting the configuration] of pathways [physical element]. [column 2, lines 6-

10]. Bakke also teaches dynamic selection of the physical element [column 5, lines 24-29]. Motivation

exists to statically and dynamically select physical elements without involving complications to the

operating system of the host computer [Bakke, column 2, lines 42-44]. It would be obvious to one of

ordinary skill in the networking art to use static or dynamic configuration for selection of the physical

element. Since it is obvious to use either static or dynamic configuration for selection of the physical

element, it would be obvious to one of ordinary skill in the art to use both statically and dynamically select

physical elements as Bakke suggests with the end node partitioning method suggested by Shah for the

reason of giving more flexibility of operation of the device with or without necessary administrative

controls.

9.   Pertaining to claims 3, 15 and 24, Shah and Bakke teach a method for end node partitioning as

applied to claim 2. Shah fails to disclose in response to a static selection of the physical element,

modifying the configuration of the physical element through at least one of a fabric initialization and a

reboot of a node associated with the port. Bakke teaches a state resetter that can reset [reboot] paths

[nodes] into a state to accept the incoming commands/data. [column 5, lines 51-54]. Motivation exists to

reboot nodes in the end node partitioning method so a failed path can be recovered for use [column 2,

lines 40-42]. It would be obvious to one of ordinary skill in the art to combine Bakke's ability to reboot

paths with Shah and Bakke's method for end node partitioning with static and dynamic configuration.

10.   Pertaining to claim 4 and 25, Shah and Bakke teach a method for end node partitioning as

applied to claim 2. Shah fails to disclose in response to a dynamic selection of the physical element,

modifying the configuration of the physical element through at least one of a fabric initialization and a

reboot of a node associated with the port.   Bakke teaches a state resetter that can reset [reboot]

paths [nodes] into a state to accept the incoming commands/data. [column 5, lines 51-54]. Motivation

exists to reboot nodes in the end node partitioning method so a failed path can be recovered for use

[column 2, lines 40-42]. It would be obvious to one of ordinary skill in the art to combine Bakke's ability to reboot paths with Shah and Bakke's method for end node portioning with static and dynamic configuration.

11.   Pertaining to claims 6, 18 and 27, Shah teaches a method for end node partitioning as applied to claim 1. Shah fails to disclose in response to a host channel adapter and a host node becoming operational, reporting the host channel adapters and host processor node as they become operational. Bakke teaches the ability to report the host channel adapters and host processor node as they become operational [column 5, lines 33-35 describe a redundancy manager with a detector of paths connected to the device, and column 5, lines 54-56 describe the detector's recovery notifier to allow failed links that have been recovered [or added] to be activated]. Motivation exists to report host channel adapters that have become operational to the end node partitioning method in order to adapt to new devices and new physical paths without involving complications to the operating system of the host computer [Bakke, column 2, lines 42-44]. It would be obvious to one of ordinary skill in the art to report host channel adapters that become operational to the method of end node partitioning suggested by Shah.

12.   Pertaining to claims 7, 19 and 28, Shah teaches a method for end node partitioning as applied to claim 1. Shah fails to disclose in response to removing a host channel adapter and a host node from operation, reporting the removal of the host channel adapter and the host node from operation. Bakke teaches the ability to report the removal of host channel adapters and host processor node [column 5, lines 33-35 describe a redundancy manager with a detector of paths connected to the device, and column 5, lines 47-51 describe the detector's ability to notify the method if a path has failed [been removed]]. Motivation exists to notify the end node partitioning method of a failed link so the method can dynamically use alternate paths [Bakke, column 2, lines 39-42].   It would be obvious to one of ordinary skill in the art to combine Bakke's ability to report the removal of a host channel adapter/node to the end node partitioning method suggested by Shah and Bakke.

13.   Pertaining to claim 29, Shah and Bakke teach a computer program product for end node partitioning as applied to claim 23. Bakke fails to disclose instructions for connecting one or more operating system images to at least one host channel adapter. Shah teaches connecting one or more

operating system images to at least one host channel adapter, as previously stated in the rejections for claims 8 and 20. [column 6, lines 44-47, where "different systems" is "one or more operating system images"] Motivation exists for an end node partitioning product to support multiple systems as hardware and software are often used to support asynchronous data transfers between two memory regions, often on different systems [Shah, column 1, lines 21-23]. It is obvious to one of ordinary skill in the art to allow the computer program product suggested by Shah and Bakke to connect to different systems as suggested by Shah.

14.   Pertaining to claim 30, Shah and Bakke teach a computer program product for end node partitioning as applied to claim 29. Bakke fails to disclose wherein the host channel adapter is a virtual host channel adapter. Shah teaches wherein the host channel adapter is a virtual host channel adapter, as previously stated in the rejections for claims 9 and 21. [column 6, lines 44-47, where "VI hardware" is "virtual host channel adapter". VI is defined as "Virtual Interface" at column 6, line 26] Motivation exists to use virtual host channel adapters with the end node partitioning computer program product in order to help manage external bus traffic that is becoming increasingly congested by utilizing devices with multiple ports. [Bakke, column 2, lines 1-6] It is obvious to one of ordinary skill in the art to utilize Shah's virtual host channel adapter with the computer program product suggested by Shah and Bakke.

Response to Arguments

15.   Applicant has overcome the objections to claims 16 and 27 by amendment. The objections have therefore been withdrawn.

16.   Applicant's arguments filed 12/3/2004 have been fully considered but they are not persuasive.

17.   Applicant argues that merely assigning a LID to each port does not teach the features of Applicant's claims. Shah does not merely assign a LID to each port. Shah can assign multiple LIDs to a port. [Shah, column 8, lines 52-55] Shah detects ports being added to the network and discovers the topology for that subnet. [Shah, column 8, lines 33-41] Shah implements switch forwarding tables to control access. [Shah, column 8, lines 40-41]

18.   Applicant argues that Shah does not teach in response to determining that the physical element is a particular type of physical element, partitioning the physical element to provide a plurality of virtual representations of the physical element. Applicant further argues that Shah does not teach providing virtual representations of the switch. In the revised rejection given above, the Examiner has shown that Shah clearly meets these modifications to Applicant's revised claim language. Additionally, the claim language has left the definition of determining the physical element is a particular type of physical element very broad. When the subnet manager discovers subnet topology upon detection of a new host, it has determined the physical element [channel adapter, port] is a particular type of physical element [if the element is detected as being connected to the subnet, then it is the type of element that is connected to the subnet as opposed to the type of element that is NOT connected to the subnet].

19.   Applicant argues that Shah does not teach each one of the virtual representations of the physical element having a unique access control level. Applicant further argues that Shah does not teach each of the ports of its switch having a unique access control level. Shah gives multiple ways of implementing access control. Shah allows multiple paths to a port to have different service levels. [Shah, column 8, lines 56-67] Shah also implements switch forwarding tables, which are commonly known in the networking art as both allowing access to the network and limiting access to the network based on administrative parameters. [Shah, column 8, lines 40-41]

20.   Applicant argues that Shah does not teach the physical element being partitioned by assigning a different local identifier to each one of the ports that is included within the physical element. Applicant argues that Shah teaches assigning a LID to the ports of the switch, but that merely teaching assigning a LID to the ports of a switch does not teach the physical element being partitioned. Shah discloses assigning LIDs to ports on a switch and allowing a port to have multiple LIDs with multiple access levels, as previously shown. Shah also discloses that each subnet will have unique LIDs for each port, which is assigning a different LID to each port in the physical element [here shown as a subnet]. [Shah, column 8, lines 20-60]

21.   Applicant argues that the combination of Shah and Bakke does not describe, teach, or suggest the combination of selecting the configuration including a static selection and a dynamic selection,

partitioning a physical element, providing a plurality of virtual representations, and each virtual

representation of the physical element having a unique access control level. The Examiner has shown

that Shah teaches partitioning a physical element, providing a plurality of virtual representations, and

assigning unique access control levels to virtual representations in the above refined rejection. The

Examiner has also shown above that Bakke fully supports either static or dynamic selection, and that

using both static and dynamic selection is an obvious modification of the invention. The Examiner has

also restated a motivation for the combination of Shah and Bakke.

22.   Applicant argues that the combination of Shah and Bakke does not describe, teach, or suggest

the combination of modifying the configuration in response to a static selection through at least one of a

fabric initialization and a reboot of a node, partitioning a physical element, providing a plurality of virtual

representations, and each virtual representation of the physical element having a unique access control

level. The Examiner has addressed this argument above within the updated rejection by clearly showing

Bakke demonstrating a reboot of the node and reconfiguring the element. Shah shows configuration

through a fabric initialization, which the Examiner presents as including detection of a channel adapter.

Shah presents fabric analysis and updating switch forwarding tables upon detection of a channel adapter,

which falls well within the bounds of fabric initialization. [Shah, column 8, lines 32-41]

23.   Applicant argues that the combination of Shah and Bakke does not describe, teach, or suggest

the combination of in response to a host channel adapter and a host node becoming operational,

partitioning a physical element, providing a plurality of virtual representations, and each virtual

representation of the physical element having a unique access control level. The Examiner has

addressed this argument above within the updated rejection. The Examiner restates the point that

actions undertaken when a new host is detected by Shah would be equivalent to a host channel adapter

and a host node becoming operational since a channel adapter and a host can be considered to be

paired communicatively together.

24.   Applicant argues that the combination of Shah and Bakke does not describe, teach, or suggest

the combination of in response to removing a host channel adapter and a host node from operation,

reporting the removal, partitioning a physical element, providing a plurality of virtual representations, and

each virtual representation of the physical element having a unique access control level. The Examiner has shown updating the system upon removal of an element through the combination of Shah and Bakke, mainly through the elements of the Shah reference presented in the rejection above. The combination of Shah and Bakke is only necessary because of claim dependence to demonstrate all features in this argument.

25.   Applicant argues that the combination of Shah and Bakke does not describe, teach, or suggest the combination of connecting one or more operating system images to at least one host channel adapter, partitioning a physical element, providing a plurality of virtual representations, and each virtual representation of the physical element having a unique access control level. The Shah reference addresses all of these limitations in the above rejection. The combination of Shah and Bakke is only necessary because of claim dependence to demonstrate all features within this argument.

Conclusion

26.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
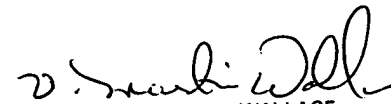
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is (571) 272-3921. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Valencia Martin-Wallace can be reached on 571-272-6159. The fax phone number for the organization

where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application

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VALENCIA MARTIN-WALLACE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700